

## PATENT COOPERATION TREATY

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**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

(Chapter II of the Patent Cooperation Treaty)

**(PCT Article 36 and Rule 70)**

Applicant's or agent's file reference P16967PCMH	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/SE2004/001338	International filing date (day/month/year) 16.09.2004	Priority date (day/month/year) 26.09.2003	
International Patent Classification (IPC) or national classification and IPC INV. F42B3/00			
Applicant KANERVA, Pentti			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <ul style="list-style-type: none"> <li>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:           <ul style="list-style-type: none"> <li><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</li> <li><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</li> </ul> </li> <li>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</li> </ul>			
<p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Box No. I Basis of the report</li> <li><input type="checkbox"/> Box No. II Priority</li> <li><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li><input type="checkbox"/> Box No. IV Lack of unity of invention</li> <li><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li><input type="checkbox"/> <del>Box No. VI</del> Certain documents cited</li> <li><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</li> <li><input type="checkbox"/> Box No. VIII Certain observations on the international application</li> </ul>			
Date of submission of the demand 30.03.2005	Date of completion of this report 11.05.2006		
Name and mailing address of the International preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer  Beaufumé, C Telephone No. +31 70 340-3568		



**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/SE2004/001338

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on

- the international application in the language in which it was filed
- a translation of the international application into E, which is the language of a translation furnished for the purposes of:
  - international search (under Rules 12.3(a) and 23.1(b))
  - publication of the international application (under Rule 12.4(a))
  - international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

**Description, Pages**

1-6 as published

**Claims, Numbers**

1-7 as published

**Drawings, Sheets**

1/2, 2/2 as published

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3.  The amendments have resulted in the cancellation of:

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- the description, pages
- the claims, Nos.
- the drawings, sheets/figs
- the sequence listing (*specify*):
- any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/SE2004/001338

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N) Yes: Claims 1-7

No: Claims

Inventive step (IS) Yes: Claims 1-7

No: Claims

Industrial applicability (IA) Yes: Claims 1-7

No: Claims

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

1. Reference is made to the following document:

D1 DE 2514976 A  
D2 US 2912901 A  
D3 US 5727288 A

2. **Novelty**

- 2.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document) an explosive attachment device (1-12,15-18,22) (fig. 1-6; claim 1) for mechanical connections of components (13,14,20,21) (fig. 4-6), internally equipped with an explosive charge (4), the detonation shock effect of which is strong enough for rupturing a connection (12,15,17,22) forming part of the attachment device (1-12,15-18,22), for a rapid disconnection (claim 1; pages 2 and 3), whereby the attachment device incorporates an attachment screw (12,22), which extends through the interconnected components (13,14,20,21) and an explosive attachment element (1-11,15-18) in which the attachment screw (12,22) is fixedly mounted, thus that the interconnected components (13,14,20,21) are clamped between the head of the said attachment screw (12,22) and the explosive attachment element (1-11,15-18), which explosive element (1-11,15-18) comprises a cylinder (2) (fig. 3), which is closed by means of a cover (8) (fig. 1-3; claim 3), which engages against one of the interconnected components (13,14,20,21) and a piston (8,9,10) (fig. 3) mounted in the cylinder (2) (claim 5; page 3, lines 1-3), which has substantially the same outer diameter as the inner diameter of the cylinder (2).
- 2.2 The subject-matter of claim 1 differs from this known explosive attachment device in that the piston is arranged inside the cylinder thus that there is a substantial space at both sides of the piston, whereby in the space between the piston and the bottom of

the cylinder is provided a circular row of small holes in the wall of the cylinder at a distance from the bottom of the cylinder, which is at least equal to the height of the piston at its biggest diameter and which piston is provided with a rod with a substantially smaller diameter than the inner diameter of the cylinder and which rod extends in parallel to the longitudinal mean axis of the cylinder through the cover, but not outside this, thus that the attachment screw can be fixedly mounted in the rod and in which cylinder in the space between the piston and the cover is arranged the explosive charge, which is provided with a firing device, which is equipped with a delay mechanism, whereby the attachment device after a time delay is arranged to be blasted in such a manner, that the blasting pressure is converted to a pulling stress, which acts upon the attachment screw to be pulled off without the other part of the device being splitted.

- 2.3 The subject-matter of claim 1 and its dependent claims 2-7 is therefore new (Article 33(2) PCT).

### **3. Inventivity**

- 3.1 D1 is disclosed as the closest prior art in the paragraphs 2.1 of this supplementary sheet and the differences between the closest prior art and the subject matter of the independent claim 1 are disclosed in the paragraphs 2.2 of this supplementary sheet.
- 3.2 The problem to be solved by the present invention may be regarded as to pull apart an attachment screw without causing metal splinters or violent chock effect and with a build-in delayed-action firing device (see page 2, lines 34-37 of the description of the application).
- 3.3 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:  
- the combination of the circular small holes, the screw fixedly mounted in a rod of the piston, the explosive charge being placed between the piston and the cover and the firing device with a delay mechanism are not disclosed or suggested in the cited prior

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.  
PCT/SE2004/001338

art.

- 3.4 The subject-matter of the dependent claims 2-7 is therefore considered as involving an inventive step (Article 33(3) PCT).

**4. Industrial Applicability**

The subject matter of claims 1-7 meets the requirements of Article 33(4) PCT.

**Re Item VII**

**Certain defects in the international application**

1. The features of the preamble of claim 1 are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
2. Although claim 1 is drafted in the two-part form the features "the attachment device incorporates an attachment screw, which extends through the interconnected components and an explosive attachment element in which the attachment screw is fixedly mounted, thus that the interconnected components are clamped between the head of the said attachment screw and the explosive attachment element, which explosive element comprises a cylinder, which is closed by means of a cover, which engages against one of the interconnected components and a piston mounted in the cylinder" are incorrectly placed in the characterising portion, as they are disclosed in document D1 in combination with the features placed in the preamble (Rule 6.3(b) PCT).
3. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the document D1 is not mentioned in the description, nor is this

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.  
PCT/SE2004/001338

document identified therein.

4. According to the requirements of Rule 11.13(m) PCT the same feature shall be denoted by the same reference sign throughout the application. This requirement is not met in view of the use of the "explosive attachment element" which is referenced (1-14) in claim 1 and the description page 3, line 15 and is also referenced (4-14) in the description page 3, line 34.
  - 4.1 In the same respect it is not clear which feature(s) stand(s) behind the references (4-14). The references (4-14) have two different designations in claim 1: "explosive attachment element" on line 12 and "explosive element" on lines 12 and 13.
  - 4.2 Still in the same respect it is not clear which feature(s) stand(s) behind the references (1-14). The references (1-14) have two different designations in the description on page 3: "attachment element" on lines 17 and 18 and "explosive attachment element" on line 34.